

Claims

- [c1] 1.A temporal image processing system comprising:
a temporal processing controller adapted to receive a first image signal and a second image signal from a scanning unit,
said temporal processing controller comprising a registration module adapted to register a region of interest of said first image signal and said second image signal, said registration module further adapted to generate therefrom a registration signal, said temporal processing controller further comprising a confidence module adapted to receive said registration signal and further adapted to determine a confidence map therefrom, said confidence map adapted to enhance a contrast of a temporal change in said object relative to a contrast due to at least one misregistration.
- [c2] 2.The system of claim 1, wherein for said region of interest comprising a minor region of said object, at least one rigid body registration transformation including at least one of translation, rotation, magnification, or shearing is a criterion used to register said first image signal and said second image signal.
- [c3] 3.The system of claim 1, wherein for said region of interest including a major region of said object, at least one warped transformation is a criterion used to register said first image signal and said second image signal.
- [c4] 4.The system of claim 3, wherein said at least one warped transformation is implemented through multi-region, multi-scale, pyramidal logic designed such that a different cost function is adapted to highlight changes between said first image signal and said second image signal for a plurality at each of a plurality of scales.
- [c5] 5.The system of claim 4, wherein said cost function includes at least one of mathematical correlation, sign-change measurement, or statistical analysis.
- [c6] 6.The system of claim 1, wherein said confidence module is adapted to receive at least one of said cost function and a figure of merit of said cost function, said confidence module further adapted to generate said confidence map therefrom.
- [c7] 7.The system of claim 1, wherein said confidence module is adapted to

major region of interest of said object within said first image signal and said second image signal through at least one warped transformation criterion.

- [c14] 14.The method of claim 13 wherein registering further comprises registering a major region of interest of said object within said first image signal and said second image signal through at least one warped transformation criterion including multi-region, multi-scale, pyramidal logic; and highlighting changes between said first image signal and said second image signal with a different cost function at each of a plurality of scales.
- [c15] 15.The method of claim 14, wherein said cost function includes at least one of mathematical correlation, sign-change measurement, or statistical analysis.
- [c16] 16.The method of claim 9 wherein generating a confidence map from said cost signal further comprising receiving in said confidence module at least one of a cost-function or a figure of merit of said cost function; and generating a confidence map from said at least one of said cost function or a figure of merit of said cost function.
- [c17] 17.The system of claim 9, further comprising illustrating a difference between said first image signal and said second image signal according to whether said difference is resultant from an anatomical change or said at least one misregistration.
- [c18] 18.The system of claim 9, further comprising regulating a relative importance of said confidence map with a sensitivity metric, which is either embedded or adapted for user operation.
- [c19] 19.A temporal image processing system comprising:
a scanning unit adapted to scan an object and generate a first image signal and a second image signal of said object; and
an image controller coupled to said scanning unit and adapted to receive said first image signal and said second image signal,
said image controller comprising a temporal processing controller adapted to receive said first image signal and said second image signal in a registration module, register at least one region of interest of said first image signal and

$$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} e^{-ikx} f(k) dk = f(x)$$

[c20] 20. The system of claim 19, wherein said scanning unit comprises one of a CT scanning unit, an x-ray scanning unit, an MRI scanning unit, a PET, a radionuclide imaging system, an ultrasound imaging unit, or an optical imaging unit.